A List of Kansas Minerals

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1895

Submitted to the Department of Geology of the University of Kansas in partial fulfillment of the requirements for the Degree of Master of Arts

Master Thesis

Geology

Grover, Charles H. 1895

List of Kansas minerals.

Geology June 1895 T 1895

A list of Kansas Minerals with brief notes on their crystalographic form, chemical composition, and the principal localities from which they have been reported.

The following list, it is believed, embraces all the minerals of the state that have been so far discovered and reported. Two similar lists have been heretofore published in the Transactions of the Kansas Academy of Science, the first by Prof. B. F. Mudge, in Vol. 7, page 27, 1879--80, the second and last by Profs. Failyer and Bailey, in vol. 13, page 76, 1891--92. To the number of minerals enumerated in these two lists I am unable to make any addition, and the localities also of their occurrence, I am compelled to leave unchanged, with but few unimportant exceptions. I have, however, carefully collated the two lists, arranged the minerals in the alphabetical order of their scientific names, retaining the numerical references to Dana's Mineralogy, revised edition of 1892; and I have given the general crystalographic forms of each mineral with the formula of its chemical composition, with such other information in special instances as has been within my reach.

Alphabetical List of Kansas Minerals Brought forward to June 1, 1895.

Anglesite (720). Orthorhombic, composition lead sulphate, $PbSO_4$, reported by Haworth from Cherokee county.

Anglesite occurs as an alteration product from galena and consequently is found where galena has been exposed to weathering agencies. Probably it occurs in other localities where galena is found, but thus

far none has been reported.

Anhydrite (722). Orthorhombic, composition anhydrous calcium sulphate, Ca SO_4 , reported from Elsworth county by Prof. Failyer and from Kingman by Prof. Willard.

Azurite (289). Monoclinic, composition basic coppper carbonate 2Cu CO_3. Cu $(OH)_2$. No copper ores occur very abundantly in Cherokee county, butthroughout the lead and zinc mines at Galena the percolating waters carry traces of copper, so that several of the different copper minerals occur in small quantity, among which is azurite, usually found as an incrustation on the ores and rocks.

Barite (719). Orthorhombic, compostion barium sulphate $BaSO_4$. This mineral has been reported from many different counties and in but few cases has the name of the discoverer been published. It is usual ly found filling the interior of concretions, but in the lead and zinc mines of Cherokee county it is not concretionary. It is also found in Atchison county, and Brown, Cherokee, Ellis, Graham, Jefferson, Logan, Lane, Nemeha, Ness, Scott, Sheridan, Wallace, and Douglas.

Biotite (462). Monoclinic, composition variable. In most cases, an[illegible] silicate. It occurs principaly in the granitic and other glacial boulders in the northeastern part of the state, and to a considerable extent in the river sands and gravels along the different streams and quite abundant in the Tertiary gravels in the western part of the state.

Calamine (423). Orthorhombic, composition $H_2Zn_2Si\ O_5$, reported from Cherokee County. It occurs as an alteration product of zinc blende

and may therefore be expected wherever that mineral is found.

Calcite (270). Rhombohedral, composition Ca CO_3 . This mineral has a widespread distribution throughout the state, and probably occurs in almost every county; certainly in every county where limestone is found. It has been specially reported from ~~Garfield, Riley, Saline,~~ Cherokee, Logan, Trego, Wallace, Riley, Johnston Wyandotte, and Rush.

Cerusite (281). Orthorhombic, composition lead carbonate, Pb CO_3 . As this is an alteration product from galena it is to be expected wherever that mineral occurs. It is ~~xx~~ found associated with Anglesite. It is reported from Cherokee county.

Celestite (720). Orthorhombic, composition strontium sulphate Sr SO_4. This mineral has been found quite sparingly in Kansas, but has been reported from Garfield, Riley, Saline, Washington, also in concretions from Douglas and Jefferson.

Catlinite. This is a variety of clay known principally from its occurrence in s uthwestern Minnesota and rendered famous by its extensive use by the Indians for making their sacred pipes, and hence is known as pipe-stone clay. It is reported by Failyer from Potawatomie.

Chalcopyrite (83). Tetragonal, a sulphide of copper and iron, Cu Fe S_2. This mineral occurs in very beautiful crystals resting upon the surface of zinc blende and often upon the gangue rock in the lead and zinc mines of Cherokee county. The crystals vary in size from microscopic to half an inch in diameter.

Chalk. This mineral is composed chiefly of microscopic shells. It is reported from Grove, Graham, Ellis. Logan, Trego, and other western counties.

Coal occurs in many counties of the eastern part of the state and some of the western. It is specially reported from Bourbon, Cherokee, Coffee, Linn, Leavenworth, and Osage, besides other counties.

Copper (15). Isometric, Reported by Mudge as occurring in small quantities with iron pyrit/es.

Dolomite (271). Rhombohedral, composition, carbonate of calcium and magnesium $(Ca\ Mg)\ CO_3$. It is reported rom Bourgon, Cherokee, Douglas, also found in a limited extent as a constituent of some of the limestones, although by no means so extensively as is usually supposed.

Epsomite / Orthorhombic, composition $Mg\ SO_4+7H_2O$. Reported by Mudge as usually associated with gypsum, sulphur, epsom and glauber's salts, and results in the decomposition of shales. It is reported from Wabaunsee, Saline, Dickinson, Clay, Republic, and several other counties.

Galenite (45). Isometric, composition lead sulphide Pb S . It is reported from Cherokee, Chautauqua, Douglas, Elk and Linn. The mines of Cherokee county which were opened in 1876 are very productive having yielded several million dollars worth of ore. The galena occurs disseminated through a chert rock and in cavities in most beautiful crystalline aggregates, some of which weigh more than five hundred pounds. The crystals are cubes in combination with octohedral faces

and are often very perfectly formed, and sometimes more than six inches in diameter.

Goslarite (749). Orthorhombic, composition, $ZnSO_4+7H_2O$. It occurs in Cherokee county and is produced by the weathering of zinc blende.

Greenockite (68). Hexagonal; composition cadmium sulphide Cd S. Reported from Cherokee county where it occurs as a staining on the lead and zinc ores and the gangue rocks. Rare.

Gypsum (746). Monoclinic, composition $Ca\ SO_4+2H_2O$. It is very abundant in many of the southern and western counties, especially in Allen, Barber, Comanche, Crawford, Clarke, Ellis, Logan, Marshall, Meade, Neosho, Saline. Varieties,

Alabaster from Franklin and Mitchell.

Satin Spar)
) Cherokee county.
Celenite)

Halite (166). Isometric, composition sodium chloride NaCl. This mineral occurs with great abundance almost throughout the entire state. Scarcely a deep well is known in the coal measures, permian, or Cretaceous which does not produce salty water. In many cases this is doubtless due to beds of salt left in the deposits when formed beneath the ocean water. In other instances it is due to deposits of rock salt which now exist in many parts of the state. Rock salt has been reported from the following counties Elsworth, Harper, Kingman, Reno, Rice, Saline Sumner.

Hematite (232). Rhombohedral, compostion iron sesqui-oxide, Fe_2O_3. In small quantities widely disseminated.

Marcasite (96). Orthorhombic, composition FeS_2. Found in Cherokee Jackson, Osage, Sedgwick. In the lead and zinc mines of Cherokee it is very abundant.

Hydrozincite (291). Massive, earthy, or compact; a basic zinc carbonate. As this mineral is an alteration product from zinc blende it may be expected wherever zinc blende occurs, and found in considerable abundance in the zinc mines of Cherokee county.

Hornblende (338). Monoclinic, found in drift. It is a basic silicate mineral which occurs in considerable abundance in the dark-colored glacial boulders, in the northeast part of the state, and to a much les extent in the tertiary gravels of the west, and still less frequently in the river sands which have originated from the glacial deposits or from the tertiary gravels.

Kaolinite, clay, (492), monoclinic, composition Al_2O_3, $2SiO_2+2H_2O$.

Limonite (259). Not crystalized. Composition $2Fe_2O_3$, and $3H_2O$. It is found in Cherokee and Dickinson county, and in many other places where it has resulted from the oxidation and hydration of pyrite.

Malachite (288). Monoclinic, composition $Cu_2(OH)_2CO_3$. Found in Cherokee and Sumner. In the lead and zinc mines of Cherokee county it is very abundant.

Menacchanite (233) Ilmenite. Rhombohedral; composition various. If normal it is $FeTiO_3$. Found in Riley county.

Mirabilite (743). Monoclinic; composition $Na_2SO_4, 10H_2O$. Common as an incrustation in many western counties. Known as alkali.

Meteorite (25). Iron. Isometric, usually massive and alloyed with nickel. Found in Kiowa, Mitchell, Leavenworth, Logan, Washington counties.

Nitre (684). Orthorhombic. Composition KNO_3. Reported by Mudge

as a substance called alkali, especially when associated with salt and lime. It is found in the western part of the state in small quantities.

Orthoclase. Monoclinic. Composition $K_2OAl_2O_3$, $6SiO_2$. Found in drift and other places as hornblende.

Pyrite (85). Isometric. Composition FeS_2. It is found in Allen county, Bourbon, Cherokee, Dickinson, Garfield, Jackson, Linn, Morris , Riley Wabaunsee, and other counties, particularly abundant in the lead and zinc mines of Cherokee county.

Pyrolusite (254). Orthorhombic. Composition manganese dioxide MnO_2. Found in Kingman, Logan, Potawatomie, and Washington counties.

Quartz (210). Rhombohedral, composition, SiO_2. It is found in Cherokee, Riley, and Woodson counties. The Tertiary gravels of the west abound in fine quartz pebbles, many of them of sufficient size and purity to be of commercial value. The following varieties are reported: Amethyst from Woodson county; Agate from Graham. Grove, Logan, Trego. Carnelian found in drift; chalcedony, found in drift; churt found in Cherokee and Woodson; Jasper in Graham Grove, Logan, and Trego; silicified wood in Potawatomie.

Sulphur (3). Found in Cherokee County and also in other counties where coal is extensively mined and by the natural or artificial ignitin of the dump pile the pyrites or"sulphur rock" is decomposed and a portion of the sulphur volatilized without oxidation. From this vapor beautifuo and well-formed crystals of sulphur are frequently deposited on the under side of the slabs, a few inches above the point of ignition.

Siderite (273). Rhombohedral, composition iron carbonate $FeCO_3$. Found in Ottawa (Mason).

Sphalerite (58). Isometric. Composition ZnS. Found in Cherokee county, Douglas, in concretion, Ford, Linn, and several others.

Spinel (ruby) (234). Isometric. Composition MgO, Al_2O_3. Reported from Riley county.

Smithsonite (275). Rhombohedral, composition zinc carbonate $ZnCO_3$. Reported from Cherokee county. This is an alteration product from zinc blende and is found wherever that occurs.

Vivianite (597). Monoclinic, composition hydrous ferrous phosphate $Fe_3P_2O_8+8H_2O$. Found in Douglas (Bailey), Nemeha (Willard).

Witherite (279). Orthorhombic, composition barium carbonate $BaCO_3$. Found in Garfield county (Bailey).

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June. 1895